REMARKS/ARGUMENTS

Claim Amendments

The language of Claim 2 has been incorporated into Claim 1; and Claim 2 has been cancelled. Support for this amendment is found in original Claim 2. No new matter is added to the present application.

Claim Interpretation

The term "water-soluble" is a term of art. In regards to the definition of "water soluble", the Applicants are following a long tradition of how the term "water-soluble" is used and interpreted by those of ordinary skill in the art of polymer chemistry. When one of ordinary skill in the art says that a polymer is soluble in solvent X and is insoluble in solvent Y, it is based on observation. For example, in the POLYMER HANDBOOK, Fourth Edition, edited by J. Brandrup, E.H. Immergut, and E.A. Grulke which summarizes a wide range of properties of polymers described in literature, in Section VII/497-536 titled "Solvents and Non Solvents for Polymers" compiled by Daniel R. Bloch it is stated: "The tables contain qualitative solubility data for a selected number of polymers. Since no standard definition for solvent-nonsolvent systems has been used in most of the original sources, the recognition of a certain compound as a solvent or nonsolvent is to some extent influenced by personal interpretation. No attempt has been made to edit the original information. Division into only two classes, solvents and nonsolvents, is dictated by the practical point of view."

In view of the above, the Patent Office's interpretation of the term "water-soluble" to include any degree of solubility in water, is contrary to the general usage of such term by one of ordinary skill in the art.

Claim Rejections Under 35 U.S.C. §102

Claims 1-5 and 13-17 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,464,924 issued to Silvis et al. (herein "Silvis et al."). Applicants believe that the claims, as amended, are now allowable over Silvis, et al.

Silvis, et al. do not teach or suggest the water-soluble polymers represented by the formula in Claim 1, as amended. Instead, Silvis et al. discloses

polyhydroxyaminoethers containing 0.2 – 0.8 mol fraction of polyetheramine (i.e. the Jeffamine), in which the number of alkylene oxide units is 1 – 40. The compositions of the present invention, on the other hand, are either (i) outside of the Jeffamine range (i.e. less than 0.2 or greater than 0.8) for polyetheramines of all chain lengths; or (ii) the alkylene oxide units are greater than 40 which is not disclosed in Silvis et al.

The formulae of the present invention, combined with the definitions of "x" and "q" in Claim 1, clearly represent structures not claimed or disclosed in Silvis et al. Accordingly, Applicants urge that Claims 1-5 and 13-17 are novel and patentable over Silvis et al.

Furthermore, Silvis et. al. do not describe a **water-soluble** polymer as taught and claimed in the present application. In Silvis et al., Column 6, Lines 3-12, Silvis et. al. specifically describes isolating a polymer with "a non-solvent such as a 4:1 mixtures of water and methanol." The precipitated polymer is then purified by "washing with water"; and then after the precipitate is collected, it is "washed with a suitable non-solvent, such as water". Example 1 of Silvis et. al. describes the process of isolating polymer from the solvent Dowanol™ DPM and utilizes water to remove solvent from the prepared polymer. The teachings in the specification and Example 1 of Silvis et al. do not lead one of ordinary skill in the art to believe that the polymers of the present invention would be water soluble.

In addition, Silvis, et al. teach products that are compositionally and structurally different from the water-soluble polymers of the present invention. Silvis et al at Column 6, lines 3-12 describes isolating compositions by precipitation from water and methanol as a non-solvent. If Silvis et al.'s product precipitates out when it is in contact with water; the product would not be useful in applications where a water-soluble polymer is needed such as reducing water production for subterranean reservoirs during oil recovery as described in Applicants' Specification in page 1.

When polymers of the present invention were first made by Applicants, isolation of Applicants' polymer was attempted using water or methanol as indicated by Silvis et. al. to precipitate Applicants' polymer from solution, but Applicants' polymers unexpectedly did not precipitate. In other words, the water insolubility of Applicants' claimed polymer was surprisingly not obtained. Accordingly, Applicants' polymer and the polymer of Silvis, et al. are not the same; and thus, Claims 1-5 and 13-17 are not anticipated or made obvious by Silvis et al. It is requested that the above rejection be withdrawn and the claims, as amended, be allowed.

With regard to Claims 14-16, the property of viscosity increase as temperature is increased is not an inherent property for the different polymer solution of Silvis et al. One of ordinary skill in the art normally expects that the viscosity of a polymer solution or polymer melt to decrease as the temperature increases. However, the aqueous solutions claimed in the present invention unexpectedly show a viscosity increase as the temperature is increased. Thus, Claims 14-16 are patentable over the cited art.

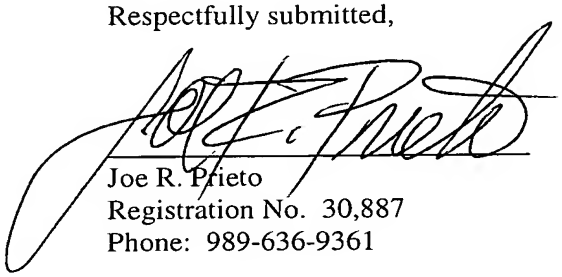
Claim Rejection Under Obviousness-Type Double Patenting

Claims 1 – 5 stand rejected on the ground of nonstatutory obviousness-type double patent as being unpatentable over Claims 1 – 8 of Silvis et al.

Applicants' polymer represented by the formula in Claim 1 does not overlap in any way with the composition described and claimed by Silvis et. al. The claims of the present invention claim a different patentably distinct composition of matter as discussed above; and thus, the rejection based on double patenting over Claims 1 – 8 of Silvis et. al. should be withdrawn.

In view of the discussion above and the amendments to the Claims, it believed that the pending amended claims of the present invention are patentable over the cited art. Reconsideration of the rejection and an early allowance of the claims is respectfully requested.

Respectfully submitted,



Joe R. Prieto
Registration No. 30,887
Phone: 989-636-9361

P. O. Box 1967
Midland, MI 48641-1967
JRP/kdh